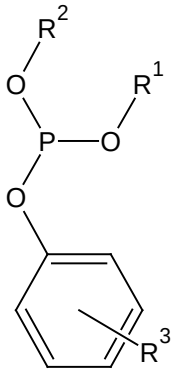
Assessment of regulatory needs

Authority: European Chemicals Agency (ECHA)

Date: 11/02/2022

Group Name: Mono-, di-phenyl phosphite derivatives

General structure:

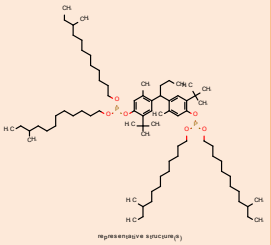
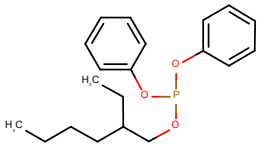
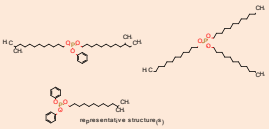
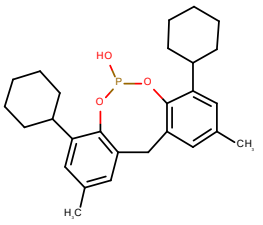


R^1: alkyl or aryl; R^2, R^3: alkyl groups but may contain aromatic substituents

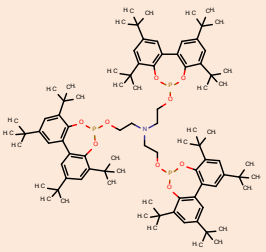
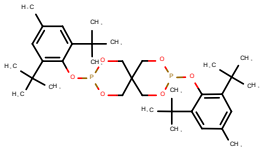
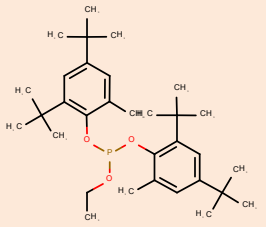
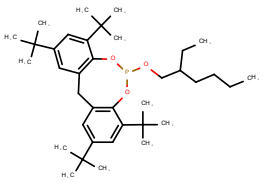
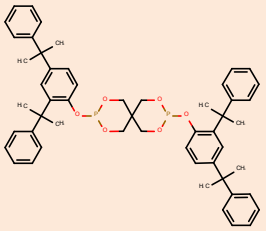
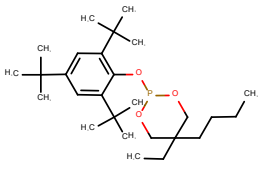
Revision history

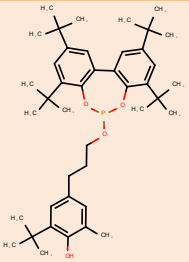
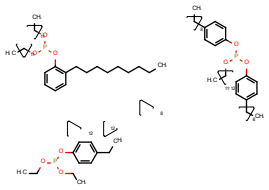
Version	*Date*	*Description*
1	11/02/2022	

Substances within this group:

EC/List number	CAS number	Substance name	Chemical structures	Registration type (full, OSII or TII, NONS), highest tonnage band among all the registrations (t/y)[1]
235-841-4	13003-12-8	Butylidenebis[2-tert-butyl-5-methyl-p-phenylene]-P,P,P',P'-tetratridecylbis(phosphine)		Full, not (publicly) available
239-716-5	15647-08-2	2-ethylhexyl diphenyl phosphite		Only C&L notification
267-466-7	67874-37-7	Diisotridecyl phenyl phosphite		Full, not (publicly) available
277-633-6	73912-21-7	4,8-dicyclohexyl-6-hydroxy-2,10-dimethyl-12H-dibenzo[d,g][1,3,2]dioxaphosphocin		Full, not (publicly) available

[1] Note that the total aggregated tonnage band may be available on ECHA's webpage at https://echa.europa.eu/information-on-chemicals/registered-substances

279-459-6	80410-33-9	Tris[2-[[2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2]dioxaphosphepin-6-yl]oxy]ethyl]amine		Full, not (publicly) available
410-290-4	80693-00-1	3,9-bis(2,6-di-tert-butyl-4-methylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane		Full, not (publicly) available
416-140-4	145650-60-8	Bis(2,4-di-tert-butyl-6-methylphenyl)ethyl phosphate		Full, 10 to 100
418-310-3	126050-54-2	2,2'-methylenebis(4,6-di-tert-butyl-phenyl)-2-ethylhexyl phosphite		Full, not (publicly) available
421-920-2	154862-43-8	3,9-bis[2,4-bis(1-methyl-1-phenylethyl)phenoxy]-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane;bis(2,4-dicumylphenyl) neopentyl diphosphite		Full, 100 to 1000
423-560-1	161717-32-4	2,4,6-tri-tert-butylphenyl 2-butyl-2-ethyl-1,3-propanediolphosphite		NONS, not (publicly) available

442-450-4	-	6-(3-(3-tert-Butyl-4-hydroxy-5-methylphenyl)propoxy)-2,4,8,1 0-tetra-tert-butyldibenz(d,f)(1,3,2)dioxaphosphepin		Full, not (publicly) available
629-199-8 (same CAS number as 421-920-2)	154862-43-8	2,4,8,10-Tetraoxa-3,9-diphosphaspiro[5.5]undecane, 3,9-bis[2,4-bis(1-methyl-1-phenylethyl)phenoxy]-	See 421-920-2	Only C&L notification
690-666-4 (same CAS number as 418-310-3)	126050-54-2	ME-bis butylphenyl ethylhexyl phosphite	See 418-310-3	Only C&L notification
701-374-4 (adapted from 247-098-3)	25550-98-5	Reaction products of triphenyl phosphite and isodecanol (1:2)	UVCB	Full, 100 to 1000
852-824-2	1404220-73-0	Phosphorous acid, mixed 2,4-bis(1-methyl-1-phenylethyl)phenyl and isodecyl and 2-(1-methyl-1-phenylethyl)phenyl and 4-(1-methyl-1-phenylethyl)phenyl and phenol triesters)	UVCB	Full, not (publicly) available
947-805-1	-	Reaction Mass of Didodecyl nonylphenyl phosphite and Dodecyl bis(4-nonylphenyl) phosphite and 4-nonylphenyl ditridecyl phosphite and Bis(4-nonylphenyl) tridecyl		Full, not (publicly) available

This table contains also group members that are not registered (yet) but have a C&L notification under the CLP Regulation. However, the list is currently non-exhaustive. Once further regulatory risk management action on one or more registered substances is being considered, ECHA will make an additional search for related C&L notified substances to be included in the group and develop a regulatory strategy for them.

Contents

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The author does not accept any liability with regard to the use that may be made of the information contained in this document. Usage of the information remains under the sole responsibility of the user. Statements made or information contained in the document are without prejudice to any further regulatory work that ECHA, the Member States or other regulatory agencies may initiate at a later stage. Assessment of regulatory needs and their conclusions are compiled on the basis of available information and may change in light of newly available information or further assessment.

Foreword

The purpose of the assessment of regulatory needs of a group of substances is to help authorities conclude on the most appropriate way to address the identified concerns for a group of substances or a single substance, i.e. the combination of the regulatory risk management instruments to be used and any intermediate steps, such as data generation, needed to initiate and introduce these regulatory measures.

An assessment of regulatory needs can conclude that regulatory risk management at EU level is required for a (group of) substance(s) (e.g. harmonised classification and labelling, Candidate List inclusion, restriction, other EU legislation) or that no regulatory action is required at EU level. While the assessment is done for a group of substances, the (no) need for regulatory action can be identified for the whole group, a subgroup or for single substance(s).

The assessment of regulatory needs is an important step under ECHA's Integrated Regulatory Strategy. However, it is not part of the formal processes defined in the legislation but aims to support them.

The assessment of regulatory needs can be applied to any group of substances or single substance, i.e., any type of hazards or uses and regardless of the previous regulatory history or lack of such. It can be done based on different level of information. A Member State or ECHA can carry out this case-by-case analysis. The starting point is available information in the REACH registrations and any other REACH and CLP information. However, more extensive set of information can be available, e.g. assessment done under REACH/CLP or other EU legislation, or can be generated in some cases (e.g. further hazard information under dossier evaluation). Uncertainties associated to the level of information used should be reflected in the documentation. It will be revisited when necessary. For example, after further information is generated and the hazard has been clarified or when new insights on uses are available. It can be revisited by the same or another authority.

The responsibility for the content of this assessment rests with the authority that developed it. It is possible that other authorities do not have the same view and may develop further assessment of regulatory needs. The assessment of regulatory needs does not yet initiate any regulatory process but any authority can consequently do so and should indicate this by appropriate means, such as the Registry of Intentions.

For more information on Assessment of regulatory needs please consult ECHA website[2].

[2] https://echa.europa.eu/understanding-assessment-regulatory-needs

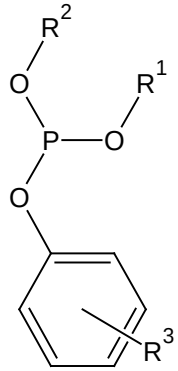
Glossary

CCH	Compliance Check
CLH	Harmonised classification and labelling
CMR	Carcinogenic, mutagenic and/or toxic to reproduction
DEv	Dossier evaluation
ED	Endocrine disruptor
NONS	Notified new substances
OEL	Occupational exposure limit
OSII or TII	On-site isolated intermediate or transported isolated intermediate
PBT/vPvB	Persistent, bioaccumulative and toxic/very persistent and very bioaccumulative
RMOA	Regulatory management options analysis
RRM	Regulatory risk management
SEv	Substance evaluation
STOT RE	Specific target organ toxicity, repeated exposure
SVHC	Substance of very high concern
TPP	Triphenyl phosphite

1 Overview of the group

ECHA has grouped together structurally similar substances based on the presence of the moiety similar to triphenylphosphite (EC 202-908-4), focusing on mono- and di-phenyl phosphite derivatives. A group assessed earlier “Triphenylphosphite and its derivatives” contained substances grouped together with similar reasoning.

The indicative general structure for this group is shown in the figure below, where R^1 can be either alkyl or aryl; R^2 and R^3 are alkyl groups but may contain additional aromatic substituents farther from the phosphite functional group.



Based on information reported in the REACH registration dossiers, all the substances in this group are used as stabilisers/antioxidants in polymer preparations in the production of rubber and plastic articles (more details on the specific articles produced have not been provided in the registration dossiers). In addition, substances EC 410-290-4 and EC 416-140-4 are also used in industrial settings in washing and cleaning products and coatings and paints, thinners or paint removers respectively. In the absence of further information, it is assumed that there is potential for exposure both for human health and environment from articles made from polymeric preparations using these substances.

In general, phosphites can undergo hydrolysis when exposed to humidity with rates of hydrolysis depending on pH and molecular weight of the substance. Undergoing hydrolysis most of the substances in this group will release alkylated phenols. In this regard, it is important to note that ECHA has grouped structurally related hydrocarbylphenols (i.e. phenols with any kind of saturated or unsaturated hydrocarbon substituent(s) on the phenol ring). Some hydrocarbylphenols have already been scrutinised by Member State Competent Authorities. For some others, regulatory activities are ongoing. The use of hydrocarbylphenols as such, as a constituent/impurity, in mixtures or articles with (potential) endocrine properties (ED), toxicity to reproduction and/or PBT/vPvB properties and potential exposure to human health and the environment is of concern. ECHA is currently assessing the regulatory needs of several groups of hydrocarbylphenols.

Note on the scope of ECHA's assessment of regulatory needs

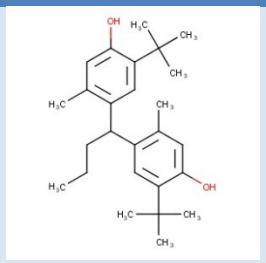
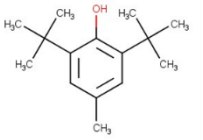
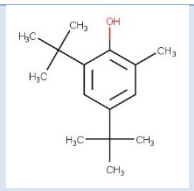
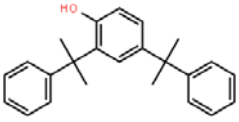
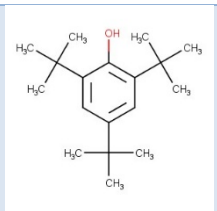
Regarding hazards, the focus of ECHA's assessment is on CMR (carcinogenic, mutagenic and/or toxic to reproduction), sensitiser, ED (endocrine disruptor), PBT/vPvB or equivalent (e.g. substances being persistent, mobile and toxic), aquatic toxicity hazard endpoints and therefore only those are reflected in the table in section 3. This does not mean that the substances do not have other known or potential hazards. In some specific cases, where ECHA identifies a need for regulatory risk management action at EU level for other hazards (e.g. neurotoxicity, STOT RE), such additional hazards may be addressed in the assessment. An overview of classification is presented in Annex 1.

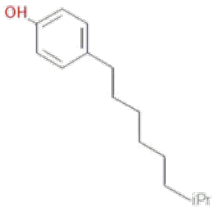
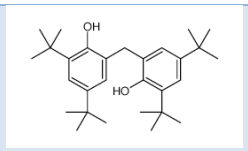
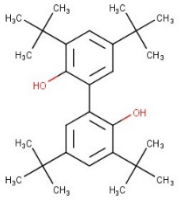
On the exposure side, ECHA is mainly using the information on uses reported in the registration dossiers (IUCLID) as a proxy for assessing the potential for exposure to humans and releases to the environment. The potential for release / exposure is generally considered high for "widespread" uses, i.e. professional and consumer uses and uses in articles. For these uses, normally happening at many places, the expected level of control is *à priori* considered limited. The chemical safety reports are not necessarily consulted and no quantitative exposure assessment is performed at this stage.

2 Justification for the need for regulatory risk management action at EU level

Based on currently available information, there is a need for (further) EU regulatory risk management – restriction for potential Repro. 1B, ED and PBT/vPvB properties of substances List/EC 235-841-4, 279-459-6, 410-290-4, 416-140-4, 418-310-3 (690-666-4), 421-920-2 (629-199-8), 423-560-1, 442-450-4, 852-824-2 and 947-805-1 in the group and/or their hydrolysis products due to the potential for release/exposure.

There is clear evidence from the data available for EC 202-908-4 (TPP), a substance part of the related group of *Triphenylphosphite and its derivatives* that hydrolysis may be substantial. However, the rate of hydrolysis for the substances in this group is unknown due to lack of data and it may be hindered based on the increased complexity of the chemical structures (i.e. higher molecular weight). Hydrolysis data is required to clarify hazards, however, due to very low water solubility of most substances in the group, hydrolysis test may not be feasible however it is required to clarify P and B properties of the substances. Feasibility of hydrolysis test will be further assessed under compliance check. On this basis, PBT/vPvB potential is considered for the parent substances. In case the hydrolysis rate is clarified and reveals to be a relevant process, ED potential is foreseen because hydrolysis of those substances is anticipated resulting in the release of alkylphenols with already known reprotoxic and/or ED properties for environment and/or under assessment for ED properties for human health and environment, and PBT/vPvB properties for 235-841-4 (see table below). In addition, for some substances those alkylphenols are already present as impurities in concentrations above 0.1 %.

EC /List number	CAS Number	Substance name	Relevant impurities/ Hydrolysis products	Notes
235-841-1	13003-12-8	Butylidenebis[2-tert-butyl-5-methyl-p-phenylene]-P,P,P',P'-tetratridecylbis(phosphine)	 6,6'-di-tert-butyl-4,4'-butylidenedi-m-cresol EC 201-618-5	6,6'-di-tert-butyl-4,4'-butylidenedi-m-cresol is under SEv for PBT/vPVB and ED properties for human health and environment
410-290-4	80693-00-1	3,9-bis(2,6-di-tert-butyl-4-methylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane	 2,6-di-tert-butyl-p-cresol EC 204-881-4	2,6-di-tert-butyl-p-cresol is currently under SEv for ED properties
416-140-4	145650-60-8	Bis(2,4-di-tert-butyl-6-methylphenyl)ethyl phosphate	 4,6-di-tert-butyl-o-cresol EC 210-485-2	4,6-di-tert-butyl-o-cresol is currently not under assessment but it is structurally related to the hydrocarbylphenols under assessment for reprotoxic and ED properties in the group *tert-alkyl hindered phenols*
421-920-2 (629-199-8) 852-824-2	154862-43-8 1404220-73-0	3,9-bis[2,4-bis(1-methyl-1-phenylethyl)phenoxy]-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane;bis(2,4-dicumylphenyl) neopentyl diphosphite Phosphorous acid, mixed 2,4-bis(1-methyl-1-phenylethyl)phenyl and isodecyl and 2-(1-methyl-1-phenylethyl)phenyl and 4-(1-methyl-1-phenylethyl)phenyl and phenol triesters)	 2,4-bis(1-methyl-1-phenylethyl)phenol EC 220-466-0	2,4-bis(1-methyl-1-phenylethyl)phenol is under assessment for PBT/vPvB and ED potential in the group *tert-alkyl hindered phenols*
423-560-1	161717-32-4	2,4,6-tri-tert-butylphenyl 2-butyl-2-ethyl-1,3-propanediolphosphite	 2,4,6-tri-tert-butylphenol EC 211-989-5	2,4,6-tri-tert-butylphenol is currently under assessment in the group *tert-alkyl hindered phenols* for PBT/vPvB and ED properties, and there is a RAC opinion for classification as Repr. 1B (CLH intention submitter: Belgium)

EC /List number	CAS Number	Substance name	Relevant impurities/ Hydrolysis products	Notes
947-805-1	–	Reaction Mass of Didodecyl nonylphenyl phosphite and Dodecyl bis(4-nonylphenyl) phosphite and 4-nonylphenyl ditridecyl phosphite and Bis(4-nonylphenyl) tridecyl	 Phenol, 4-nonyl-, branched EC 284-325-5	4-nonylphenol (linear or branched) is currently in the candidate list for endocrine disrupting properties to the environment
418-310-3 (690-666-4)	126050-54-2	2,2'-methylenebis(4,6-di-tert-butyl-phenyl)-2-ethylhexyl phosphite	 2,2'-methylenebis[4,6-di-tert-butylphenol] EC 238-334-6	Structural alert for reproductive toxicity and ED associated to tert-butylphenols (group *tert-alkyl hindered phenols*)
279-459-6 442-450-4	80410-33-9 -	Tris[2-[[2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2] dioxaphosphepin-6-yl]oxy]ethyl]amine 6-(3-(3-tert-Butyl-4-hydroxy-5-methylphenyl)propoxy)-2,4,8,1 0-tetra-tert-butyldibenz(d,f)(1,3,2)di oxaphosphepin	 3,3',5,5'-tetra-tert-butylbiphenyl-2,2'-diol EC 407-920-5	Structural alert for reproductive toxicity and ED associated to tert-butylphenols (group *tert-alkyl hindered phenols*)

Compliance check is proposed to clarify the potential hydrolysis and the reprotoxic, ED and/or PBT properties for substances List/EC 235-841-4, 279-459-6, 410-290-4, 416-140-4, 418-310-3 (690-666-4), 421-920-2 (629-199-8), 442-450-4, 852-824-2 and 947-805-1 in this group. Other hazards will also be clarified in CCH.

From the exposure/release point of view, the substances are present in articles manufactured with plastics and/or rubber containing these substances. In the absence of further data, it is assumed potential exposure/release from articles manufactured with those materials.

The first step of the regulatory risk management action proposed, should the hazards exist, is the confirmation of hazard for substances as such and/or the hydrolysis products and/or constituents/impurities via harmonised classification (CLH) as Repr. 1B and/or SVHC identification and inclusion on the Candidate List as PBT/vPvB, ED (HH or ENV).

CLH i) will require company level risk management measures (RMM) under the OSH legislation for workers, to be in place, ii) is needed or highly recommended for further regulatory processes under REACH, and iii) is a prerequisite to restrict the presence of the substances in consumer mixtures, by means of the restriction entry 28, 29, 30.

SVHC identification is required (Authorisation) or highly recommended for further regulatory processes under REACH (Restriction). In addition, SVHC identification brings immediate obligations for suppliers of the substances such as (i) supplying a safety data sheet and communicating on the safe use of the substances, (ii) responding to consumer requests within 45 days, and (iii) notifying ECHA if the article they produce contains the substance above regulatory threshold.

However, confirmation of the hazard properties via SVHC identification is not considered sufficient to minimise potential releases of the substances in the environment and exposure to humans. A restriction is seen as the most appropriate option as potential for exposure/releases is expected from article service and industrial uses.

Furthermore, potential for exposure and releases to the environment from articles is uncertain based on available information.

Therefore, a **restriction of the substances as such or in mixtures (concentration limit in mixtures)** used by industrial workers is suggested after SVHC identification, with the aim to minimise exposure and emissions to humans and the environment. Moreover, restricting substances used in articles is also proposed.

It is suggested to cover possibly also industrial uses as part of the restriction. However, the need for authorisation might be considered for industrial uses excluded from the scope of the restriction as it may not be proportionate to restrict all uses.

Before proceeding with the suggested restriction it should be considered that ECHA is currently assessing the regulatory needs of several groups of hydrocarbylphenols and the fact that other carbylphenol-containing substances might have similar use profiles. Thus, a wider restriction could be applicable on a larger group of substances for some specific uses that would mitigate the risk of regrettable substitution.

Based on currently available information, there is a need for (further) EU regulatory risk management – restriction for PBT/vPvB hazards due to the potential for release/ exposure of the substance List/EC 277-633-6 in the group.

This substance is present in articles manufactured with plastics and/or rubber containing this substance. In the absence of further data, it is assumed for now that the exposure/release potential from articles manufactured with those materials is relevant.

As stated above, the impact of hydrolysis to the overall hazards is currently unknown. Nevertheless, the identified hazards (i.e. potential PBT/vPvB properties) applies not only to the potential hydrolysis products but to the substance itself and CCH is proposed to clarify the potential PBT/vPvB properties.

The first step of the regulatory risk management action proposed, should the hazards exist, is the confirmation of hazard for substance as such and/or the hydrolysis products and/or constituents/impurities via SVHC identification and inclusion on the Candidate List as PBT/vPvB.

However, confirmation of the hazard properties via SVHC identification is not considered sufficient to minimise potential releases of the substances in the environment and exposure to humans. A restriction is seen as the most appropriate option as potential for exposure/releases is expected from article service and industrial uses. Furthermore, potential for exposure and releases to the environment from articles is uncertain based on available information.

Therefore, a **restriction of the substances as such or in mixtures (concentration limit in mixtures)** used by industrial workers is suggested after SVHC identification, with the aim to minimise exposure and emissions to humans

and the environment. Moreover, restricting substances used in articles is also proposed.

It is suggested to cover possibly also industrial uses as part of the restriction. However, the need for authorisation might be considered for industrial uses excluded from the scope of the restriction as it may not be proportionate to restrict all uses.

Based on currently available information, it is not possible to assess the need for regulatory risk management as information on hazard is not sufficient to conclude on hazards of the substances EC/List No. 239-716-5, 701-374-4 (247-098-3) and 267-466-7 in the group.

Substance EC 267-466-7 and List No. 701-374-4 are self-classified as Skin Sens. 1. Nevertheless, it was not possible to conclude on the skin sensitisation, repeated dose toxicity, mutagenicity and reproductive toxicity hazards as there is not sufficient experimental information to make an independent assessment from the human health point of view. From the environment point of view they are unlikely to have PBT/vPvB and/or ED properties but it is not possible to conclude yet on aquatic toxicity due to the lack of available data.

In addition, an eventual hydrolysis of the substances would likely lead to the formation of phenol and isodecanol which are not predicted to provide hazards leading to regulatory action.

Substance EC 239-716-5 is not registered under REACH but it is structurally related to substances List No. 701-374-4 (EC 247-098-3) and EC 267-466-7.

Therefore, data generation is needed before assessing the need for regulatory risk management of these substances. CCH has been identified as the right regulatory action for this purpose.

3 Conclusions and actions

The conclusions and actions proposed in the table below are based on the REACH and CLP information available at the time of the assessment by ECHA. The main source of information is the registration dossiers. Relevant public assessments may also be considered. When new information (e.g. on hazards through evaluation processes, or on uses) will become available, the document will be updated and conclusions and actions revisited

Subgroup name, EC number, substance name	Human Health Hazard	Environmental Hazard	Relevant use(s) & exposure potential	Last foreseen action	Action
235-841-4* 279-459-6 410-290-4 416-140-4 418-310-3 (690-666-4)* 421-920-2 (629-199-8)* 423-560-1* 442-450-4 852-824-2* 947-805-1	Known or potential hazard for reproductive toxicity and ED Known or potential hazard for skin sensitisation for EC No. 423-560-1 and List No. 947-805-1 Known or potential hazard For mutagenicity for EC No. 410-290-4	Known or potential hazard for ED *for PBT/vPvB for aquatic toxicity	These substances are present in articles manufactured with plastics and/or rubber containing these substances. In the absence of further data, it is assumed for now that the exposure/release potential from articles manufactured with those materials is relevant.	Need for EU RRM: Restriction Justification: Articles are being manufactured with plastics and rubber containing these substances. Potential exposure from articles cannot be excluded.	**First step:** CCH except for EC 423-560-1 **Next steps (if hazard confirmed):** CLH ED assessment PBT assessment Restriction
277-633-6	No hazard or unlikely hazard for all HH endpoints	Known or potential hazard for PBT/vPvB for aquatic toxicity		Need for EU RRM: Restriction Justification:	**First step:** CCH **Next steps (if hazard confirmed):**

				Articles are being manufactured with plastics and rubber containing these substances. Potential exposure from articles cannot be excluded.	PBT assessment Restriction
701-374-4 (247-098-3) **267-466-7** **239-716-5**	Inconclusive hazard for most of the endpoints	Inconclusive hazard for aquatic toxicity No hazard or unlikely hazard for PBT/vPvB		No hypothesis yet Justification: Data missing for most of the endpoints	**First step:** CCH except for EC 239-716-5

Annex 1: Harmonised classifications and self-classifications reported by registrants

Data consulted on 12 November 2021

EC/ List No	CAS No	Substance name	Harmonised classification	Classification in registrations	Classification in C&L notifications (*)
277-633-6	73912-21-7	4,8-dicyclohexyl-6-hydroxy-2,10-dimethyl-12H-dibenzo[d,g][1,3,2]dioxaphosphocin		Aquatic Chronic 4 H413	
410-290-4	80693-00-1	3,9-bis(2,6-di-tert-butyl-4-methylphenoxy)-2,4,8,10-tetraoxa-3,9-diphosphaspiro[5.5]undecane	Aquatic Chronic 4	Aquatic Chronic 4 H413	Expl. Div. 1.6 No hazard statement[1 out of 11] Self React. Type G[1 out of 11]
423-560-1	161717-32-4	423-560-1	Skin Sens. 1 H317 Aquatic Chronic 4 H413		Skin Sens. 1 H317[5 out of 6] Aquatic Chronic 4 H413[2 out of 6] Aquatic Chronic 2 H411[2 out of 6]
690-666-4	126050-54-2	690-666-4			Aquatic Chronic 4 H413[1 out of 1]
279-459-6	80410-33-9	tris[2-[[2,4,8,10-tetra-tert-butyldibenzo[d,f][1,3,2]dioxaphosphepin-6-yl]oxy]ethyl]amine			Aquatic Chronic 4 H413[1 out of 1]
629-199-8	154862-43-8	629-199-8			Eye Irrit. 2 H319[1 out of 4] Aquatic Chronic 4 H413[3 out of 4] STOT Single Exp. 3 H335, affected organs: [1 out of 4] Skin Irrit. 2 H315[1 out of 4]
416-140-4	-	bis(2,4-di-tert-butyl-6-methylphenyl) ethyl phosphate			Aquatic Chronic 4 H413[2 out of 3]
418-310-3	-	2,2'-methylenebis(4,6-di-tert-butyl-phenyl)-2-ethylhexyl phosphite	Aquatic Chronic 4 H413	Aquatic Chronic 4 H413	
947-805-1	-	Reaction mass of didodecyl nonylphenyl		Repr. 2 H361 Skin Irrit. 2 H315 Skin Sens. 1B H317	

		phosphite and dodecyl bis(4-nonylphenyl) phosphite and 4-nonylphenyl ditridecyl phosphite and bis(4-nonylphenyl) tridecyl phosphite		Aquatic Acute 1 H400 Aquatic Chronic 1 H410	
421-920-2	-	421-920-2	Aquatic Chronic 4 H413	Aquatic Chronic 4 H413	
235-841-4	13003-12-8	butylidenebis[2-tert-butyl-5-methyl-p-phenylene]-P,P,P',P'-tetratridecylbis(phosphine)			
239-716-5	15647-08-2	2-ethylhexyl diphenyl phosphite			Skin Irrit. 2 H315[4 out of 11] Acute Tox. 4 H332[1 out of 11] Aquatic Chronic 2 H411[1 out of 11] Skin Sens. 1 H317[2 out of 11] Acute Tox. 4 H302[1 out of 11] STOT Rep. Exp. 2 H373, affected organs: [1 out of 11] Repr. 2 H361[1 out of 11] Eye Irrit. 2 H319[4 out of 11]
852-824-2	1404220-73-0	Phosphorous acid, triesters with 2,4-bis(2-phenylpropan-2-yl)phenol, 2-(2-phenylpropan-2-yl)phenol, 4-(2-phenylpropan-2-yl)phenol, isodecanol and phenol		Eye Irrit. 2 H319 Skin Sens. 1B H317 Aquatic Chronic 3 H412	
247-098-3	25550-98-5	diisodecyl phenyl phosphite			Aquatic Chronic 1 H410[7 out of 34] Eye Irrit. 2 H319[2 out of 34] Aquatic Chronic 2 H411[1 out of 34] Aquatic Chronic 3 H412[7 out of 34] Skin Irrit. 2 H315[12 out of 34] Skin Sens. 1 H317[22 out of 34] Acute Tox. 4 H302[1 out of 34] Aquatic Acute 1[1 out of 34] Aquatic Acute 1 H400[15 out of 34]

					Acute Tox. 4 H332[1 out of 34] Acute Tox. 4 H312[1 out of 34]
267-466-7	67874-37-7	diisotridecyl phenyl phosphite		Skin Sens. 1B H317 Aquatic Chronic 3 H412	
442-450-4	-	442-450-4			

(*) the number in brackets indicates the number of notifications received. Each notification can represent a group of notifiers, therefore the number may differ from the C&L inventory which displays number of notifiers.

Annex 2: Overview of uses based on information available in registration dossiers

Data consulted on 12 November 2021

Main types of applications structured by product or article types	235-841-4	267-466-7	442-450-4	852-824-2	277-633-6	421-920-2	416-140-4	410-290-4	947-805-1	235-841-4	279-459-6	418-310-3	701-374-4
REACH registrations	VIII	VIII	VIII	VII	VIII	IX	VIII	VIII	VIII	VIII	VII	VIII	IX
Washing and cleaning products								**I**					
Polymer preparations and compounds	**F, I, A**	**F, I, A**	**I, (A)**	**F, I, A**	**F, I, A**	**F, I, A**	**F, I, A**	**I, A**	**F, I, A**	**F, I, A**	**F, I, A**	**F, I, (A)**	**F, I, A**
Coatings and paints, thinners, paint removers							**I**						

F: formulation, I: industrial use, P: professional use, C: consumer use, A: article service life; P, C and A are highlighted in red to indicate widespread use with potential for exposure/release

Annex 3: Overview of completed or ongoing regulatory risk management activities

Data consulted on 13 December 2021.

There are no relevant completed or ongoing regulatory risk management activities for any of the substances.